



Springfield Farm Solar, LLC

Community Awareness Meeting

December 6, 2023

Presentation Overview:

- ❖ Introduction (Jason, Cody, Derek, Jared)
- ❖ Springfield Farm Solar Project Overview & Site Specifics
- ❖ Hanover County Solar Ordinance & Conditional Use Permit Process
- ❖ Commonwealth of Virginia Permit Process
- ❖ Municipal Advantages/Effects
- ❖ Economic Impacts
- ❖ Workforce Needs
- ❖ How a Solar Facility is Constructed
- ❖ What happens after the solar facility reaches its maximum age
- ❖ Questions/Answers

SunEnergy1 – Who are we?

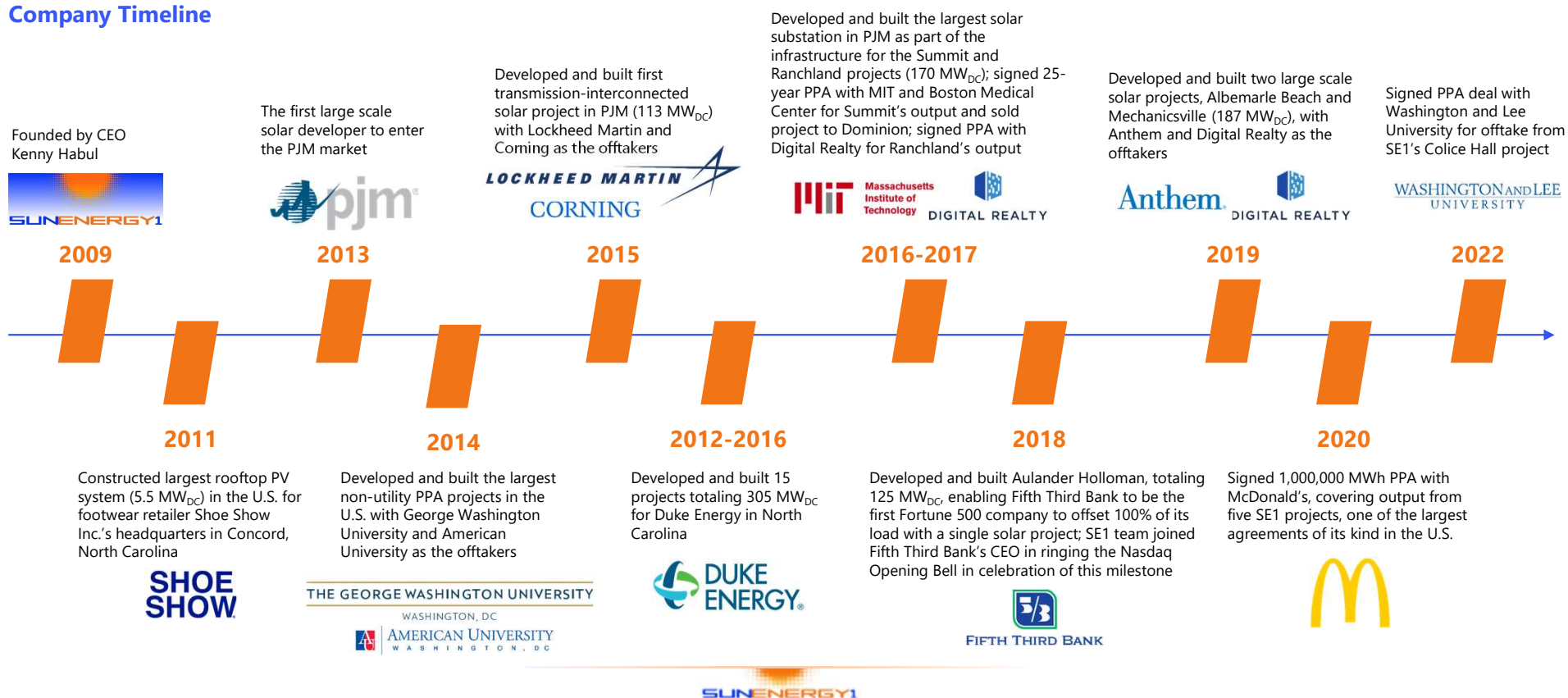
SunEnergy1 is a family-owned business and industry leader in utility-scale solar photovoltaic systems. As a vertically integrated developer, SunEnergy1 manage all stages of a solar project from land acquisition, permitting, interconnection, environmental, design, engineering, construction, commissioning, operations and maintenance, and are a long-term owner of our clean energy projects.

- ▶ Top solar developer in the U.S. founded in 2009
- ▶ 200+ employees
- ▶ 50+ projects constructed > 1GW with 14GW in development
- ▶ Development Footprint: NC, VA, MD, OH, IN, KY, NY
- ▶ Office locations: 2 offices in North Carolina (Mooresville and Bethel) and one in Connecticut
- ▶ We have been in Hanover County for over 5 years
 - Constructed the solar project at Mechanicsville Turnpike (Hwy 360)



History of SunEnergy1

Company Timeline

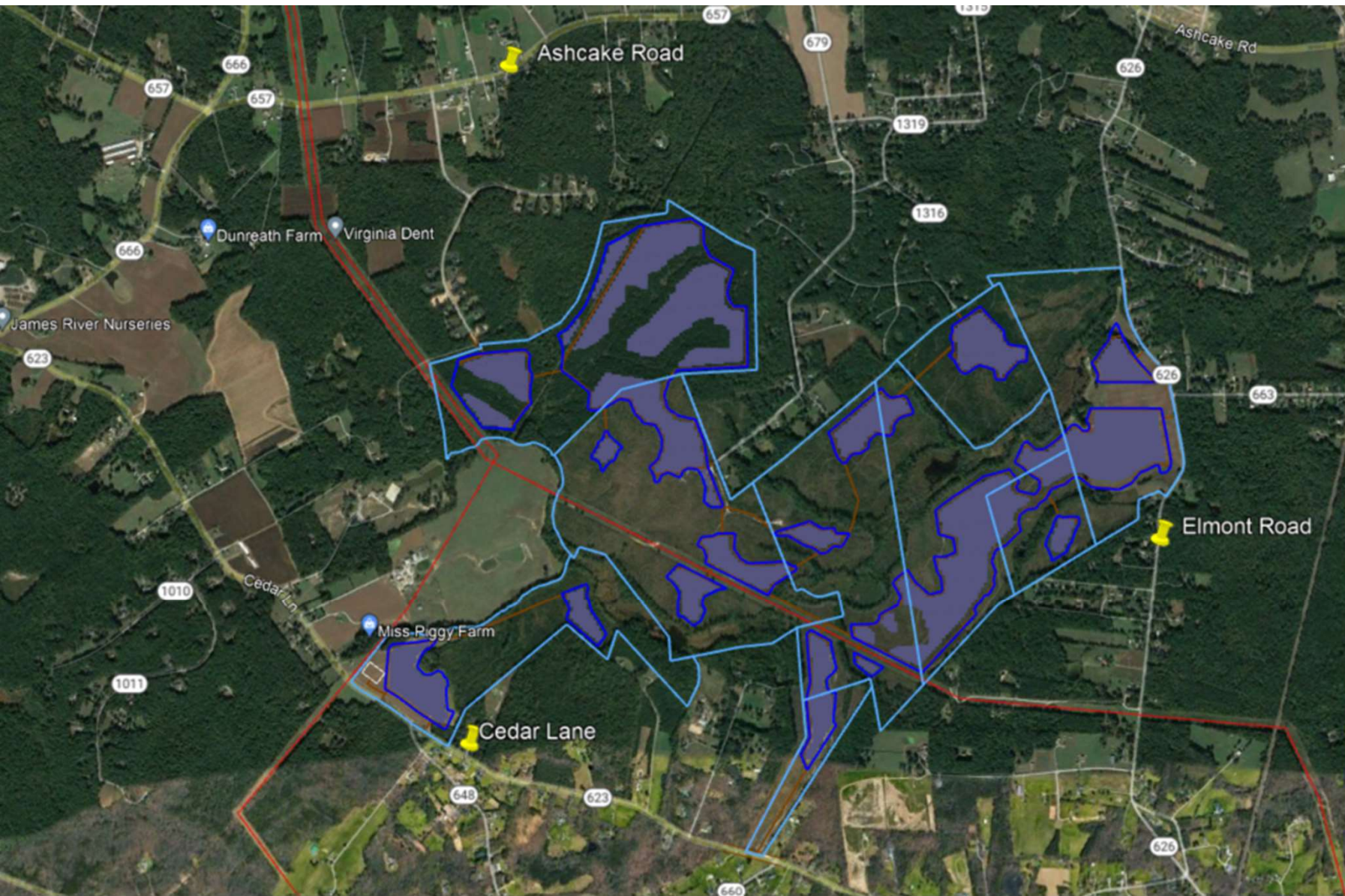


Working with Communities

- ▶ When developing clean energy projects throughout the Commonwealth of Virginia, we take pride in engaging with the community to meet the residents, neighbors, business owners, and local officials to hear your concerns and better understand what is important to your community.
- ▶ This is the 3rd open house event we have attended in Hanover County to discuss the Springfield Farm Solar project. We are here to listen and learn from you, so we can work with our environmental team and engineering team to develop a project that conforms with your ordinances and aligns with the goals for Hanover County.

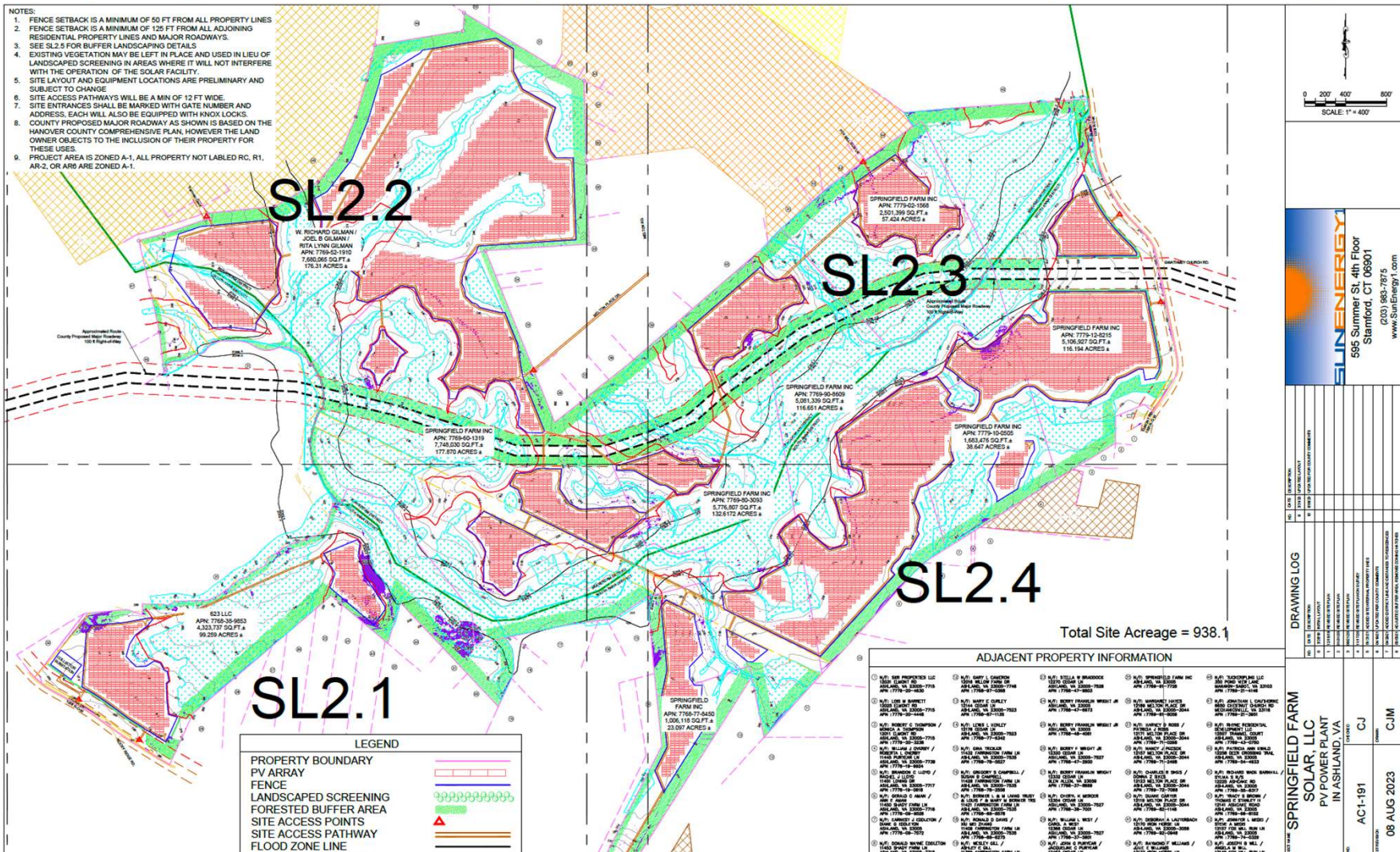
Springfield Farm Solar

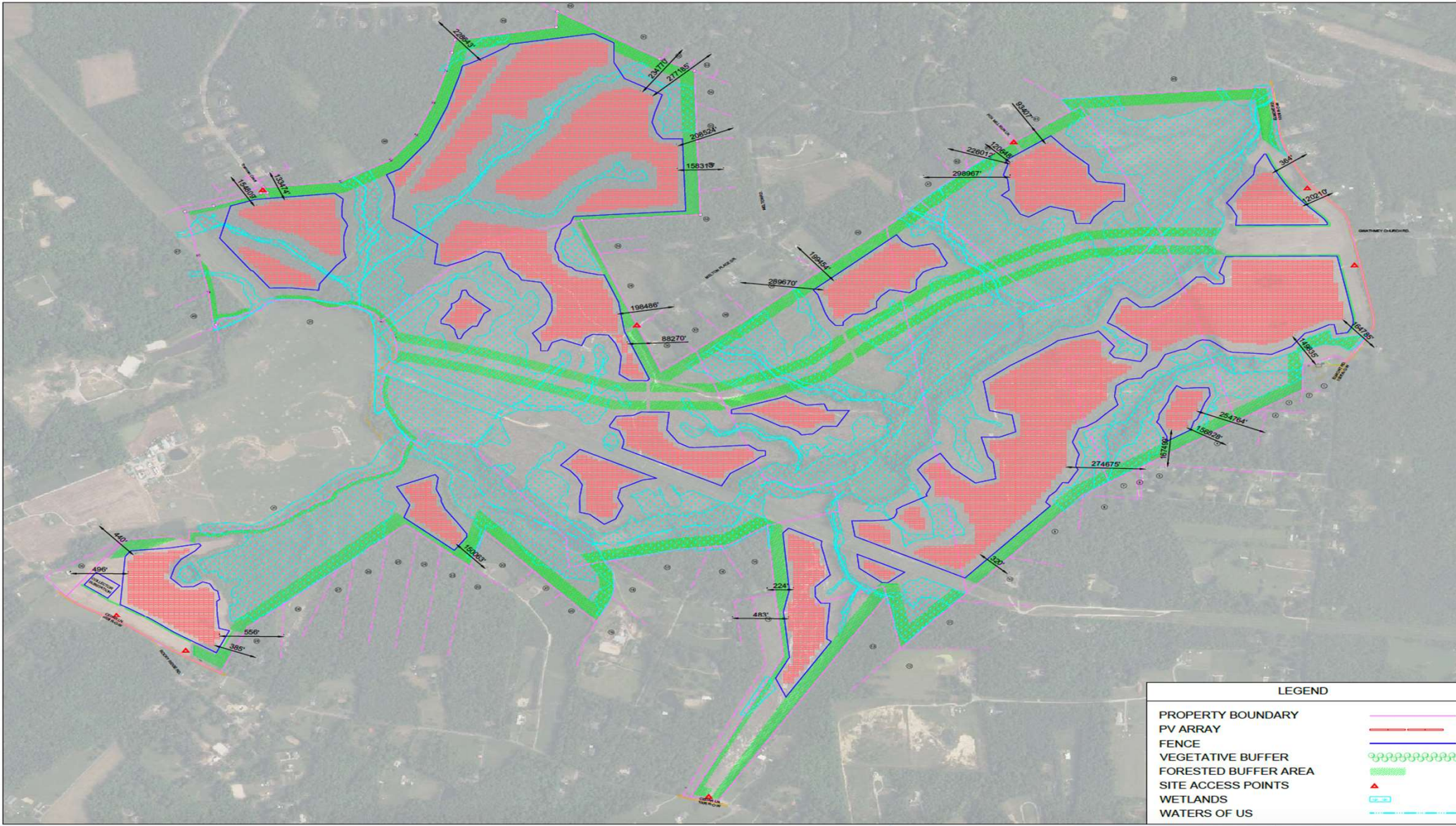
- ▶ Location - The project area is located north of Cedar Lane, west of Elmont Road, and south of Ashcake Road. It is a unique location due to the access to transmission and proximity to high load areas. To help preserve the rural character of this area, the project will be well screened from neighboring properties by utilizing the existing forested buffers and landscape plan to create new buffers where needed.
- ▶ Land - 938 acres (zoned A-1) comprised of 9 parcels owned by 3 separate landowners. Gentle rolling hills, wetland features, existing forested buffers. Approximately 325 acres within the fenced area. The area outside of the fence will remain open space for wildlife.
- ▶ Facility - 80MWac solar farm connecting to the 115kv Elmont to Greenwood DP transmission line via line tap and new 3 breaker ring bus station.
- ▶ This project will help Virginia meet the goals of the VCEA which is tasked with achieving 100% renewable energy generation by the year 2050 .



Springfield Farm Project Overview & Site Specifics

- 80MW Project
- Three Landowners – 9 parcels
- 938 acres Zoned A-1
- Beaverdam (~533 acres) & South Anna (~405 acres) Districts





LEGEND	
PROPERTY BOUNDARY	
PV ARRAY	
FENCE	
VEGETATIVE BUFFER	
FORESTED BUFFER AREA	
SITE ACCESS POINTS	
WETLANDS	
WATERS OF US	



Ilex Nellie Stevens
(NELLIE Stevens Holly)



Juniperus Virginiana
(Eastern Red Cedar)



Thuja Occidentalis
(Emerald Cedar)



Magnolia Grandiflora
(Little Gem Magnolia)



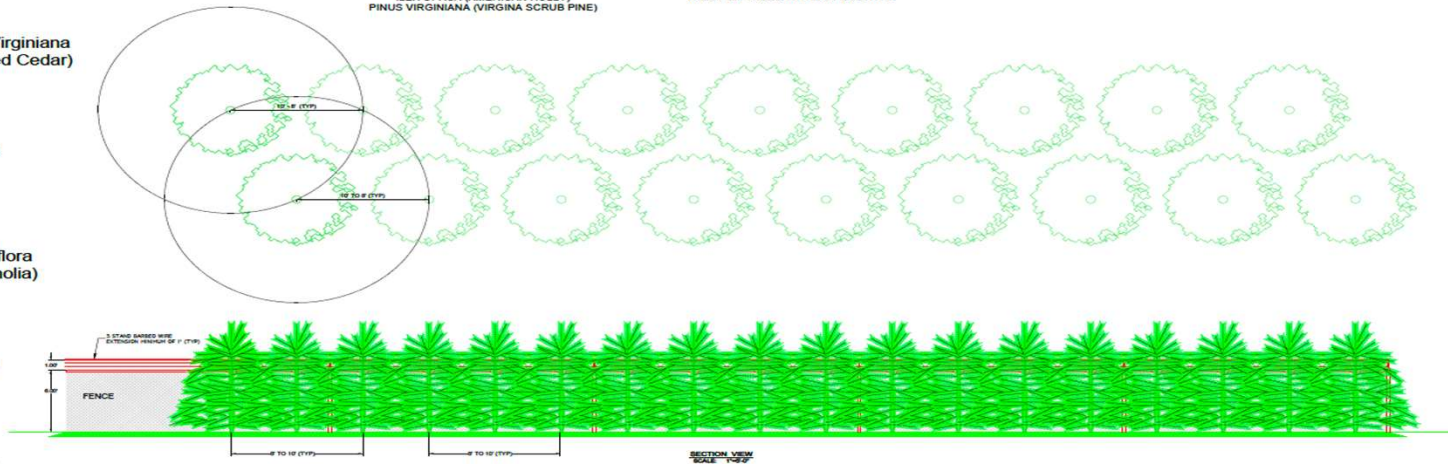
Ilex Opaca
(American Holly)



Pinus Virginiana
(Virginia Scrub Pine)

ACCEPTABLE BUFFER TREES
ILLEX NELLIE STEVENS (NELLIE STEVENS HOLLY)
JUNIPERUS VIRGINIANA (EASTERN RED CEDAR)
THUJA OCCIDENTALIS (EMERALD CEDAR)
MAGNOLIA GRANDIFLORA (LITTLE GEM MAGNOLIA)
ILEX OPACA (AMERICAN HOLLY)
PINUS VIRGINIANA (VIRGINIA SCRUB PINE)

A MINIMUM OFF FIVE SPECIES SHALL PLANTED.
TREES SHALL BE INSTALLED IN GROUPS OF THREE
TO SEVEN. TREES WILL BE STAGGERED ON CENTER
AT 8 FT WIDE FOR TREES WITH A CULTIVAR AND 10 FT
WIDE FOR TREES WITHOUT CULTIVAR



LANDSCAPED SCREENING DETAIL

NOTES:

1. FENCE SHALL BE CHAIN LINK INSTALLED AT A MINIMUM OF 6 FEET IN HEIGHT, WITH A MINIMUM OF 1 FOOT TOPER UTILIZING AT LEAST 3 STRANDS OF BARBED WIRE. PER NEC 110.31
2. EVERGREENS PLANTED AT A MINIMUM HEIGHT OF 8 FEET.
3. FENCE SETBACK A MINIMUM OF 50 FEET AND 125 FEET ALONG ROADWAYS AND RESIDENTIAL PROPERTY LINES.

Table 3-1. Stopping Sight Distance on Level Roadways

Design Speed (km/h)	Metric		U.S. Customary	
	Braking Distance (m)	Stopping Sight Distance (m)	Braking Distance (ft)	Stopping Sight Distance (ft)
20	13.9	4.6	18.5	20
30	20.9	10.3	31.2	35
40	27.8	18.4	46.2	50
50	34.8	28.7	63.5	65
60	41.7	41.3	83.0	85
70	48.7	56.2	104.9	105
80	55.6	73.4	129.0	130
90	62.6	92.9	155.5	160
100	69.5	114.7	184.2	185
110	76.5	138.8	215.3	220
120	83.4	165.2	248.6	250
130	90.4	193.8	284.2	285

Note: Brake reaction distance predicated on a time of 2.5 s; deceleration rate of 3.4 m/s² [11.2 ft/s²] used to determine calculated sight distance.

Source: AASHTO "Green Book" Table 3-1

For Cedar Lane and Elm Road Entrances Stopping Sight Distance for Posted Speed Limit of 45mph is Shown.

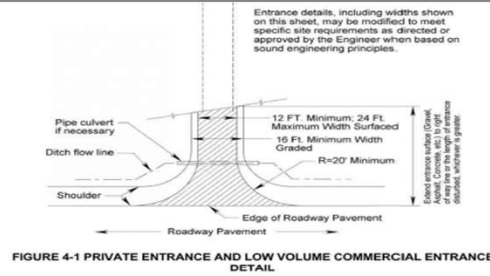


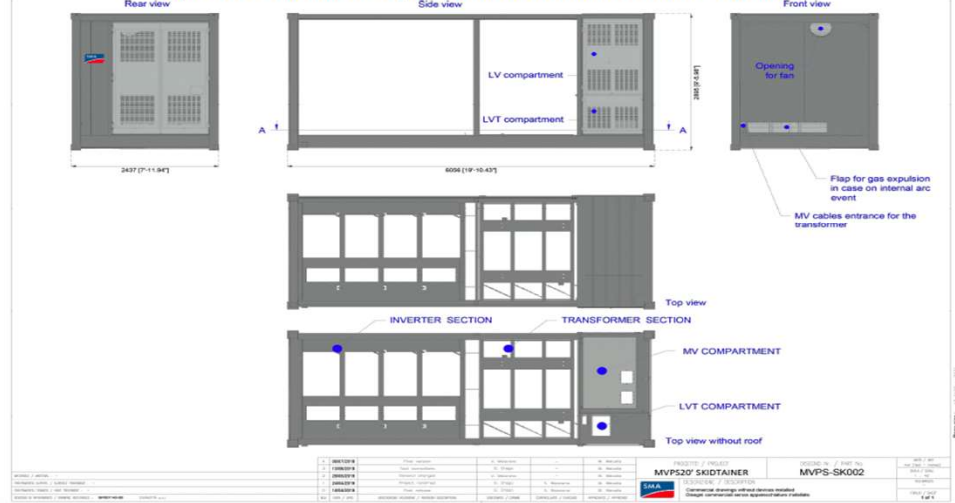
FIGURE 4-1 PRIVATE ENTRANCE AND LOW VOLUME COMMERCIAL ENTRANCE DETAIL

Rev. 7/14



TYPICAL PV RACK ELEVATION

Typical Container Style Transformer/Inverter Housing

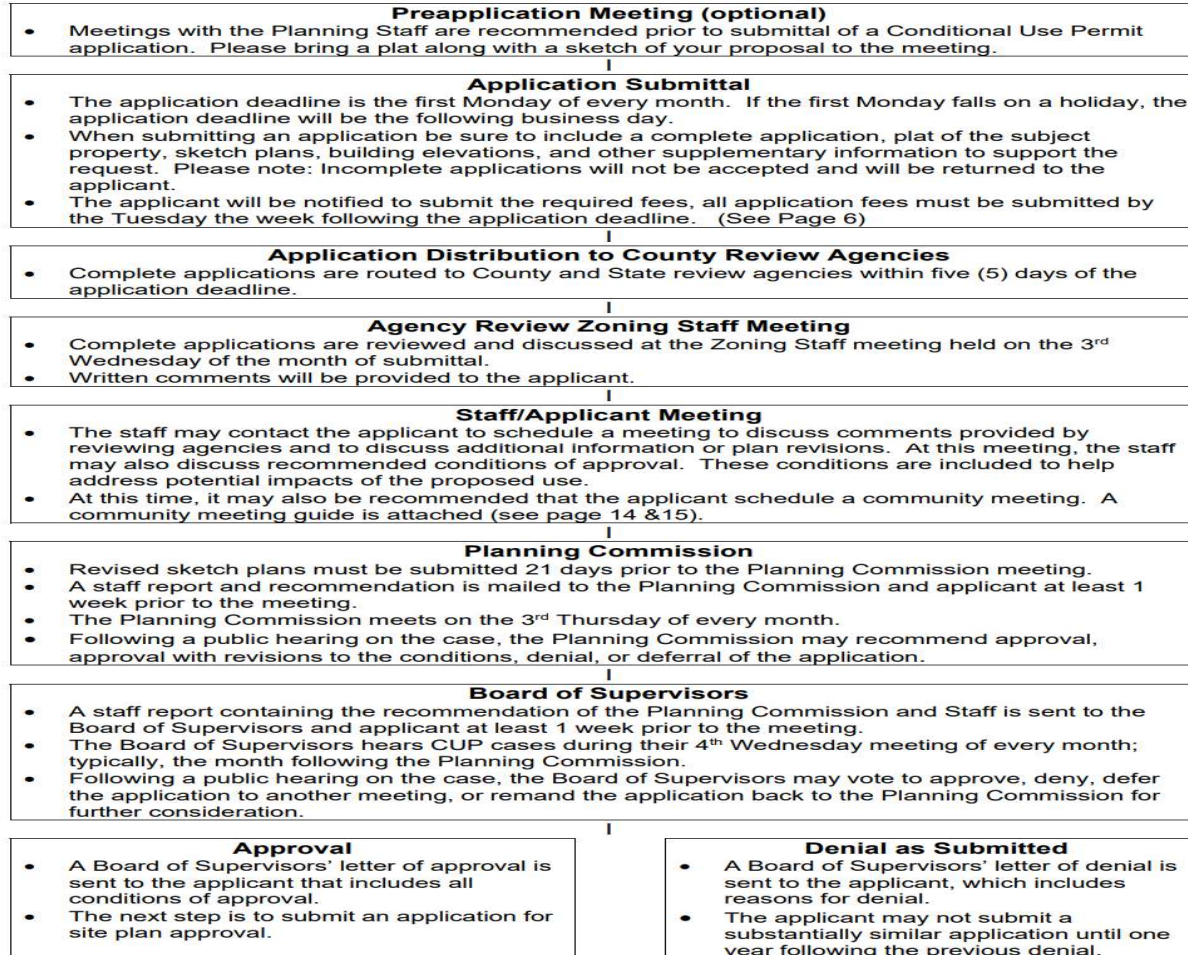


Solar Development Process:

- Interconnection injection analysis - Complete
- Secure land control (Option to Lease) – Complete
- File an interconnect study & agreement with the local transmission/utility provider – Complete
- File regulatory filings such as:
 - Federal
 - FERC (Federal Energy Regulatory Commission) – Complete
 - State
 - Permit By Rule – In Process
 - Local
 - Hanover County Conditional Use Permit application – Submitted
- Perform all applicable Environmental studies such as;
 - Phase 1 (Environmental Site Assessment)– Complete
 - Wildlife (Threatened & Endangered Species) – In Process
 - Archeological – In Process
 - Architectural – In Process
 - Other Natural Resources – Complete
 - Wetland Analysis & Army Corps of Engineers site visit – Complete
 - Erosion Control and Stormwater Analysis – In Process
 - Department of Environmental and Natural Resources review for other environmental concerns – In Process
- Begin filing for an Electrical permit - At a later date

Hanover County Conditional Use Permit Process

Approval Process for Conditional Use Permit Applications



Completed October 2019

Complete

Complete

Complete

In Process

Q1 2024

Q2 2024

Commonwealth of Virginia Permit - Permit by Rule Process (Virginia Law 9VAC15-60-30)

No.	REGULATION DESCRIPTION/REQUIREMENT
1.	Notice of intent
2.	Certification by the local county that the project complies with all applicable land use ordinances
3.	Interconnection studies
4.	Interconnection agreement
5.	Certification by professional engineer (capacity does not exceed 150MW)
6.	Analysis of potential environmental impacts of project's operations on attainment of national ambient air quality standards
7.	Analysis of impacts on natural resources i.e. wildlife, historic resources & other natural resources
8.	Mitigation plan - reasonable actions to be taken to avoid, minimize or otherwise mitigate impacts on natural resources
9.	Certification by Professional Engineer (on design and installation)
10.	Operating plan- how the project will be operated in compliance with its mitigation plan
11.	Site plan
12.	Certification by applicant that it has applied for or obtained all applicable environmental permits
13.	Certification by applicant that the project is not developed, constructed or purchased by a person that is not a regulated utility pursuant to title 56 and the project cost are not recovered from Virginia customers under base rates, etc.
14.	30-day Public Review/Comment & Public Meeting
15.	Applicable fees

Municipal Advantages

- Increased tax revenue
- Open spaces, buffers, and wetland areas will remain throughout project lifecycle
- No need for water or sewer
- No increase demand on schools or government agencies/services
- No additional police/EMS needs
- No new roads or permanent facilities for County to maintain
- Temporary use unlike residential or commercial
- Land to be returned to its existing use upon decommissioning



Benefits of solar in the community:

- Economic Development
 - Jobs (~300 workers)
 - Increased business revenue
 - Local construction related business
 - Restaurants
 - Hotels
 - Hardware stores
 - Gas stations
 - Increased tax revenue (with state exemptions) ~\$2.4m over 30 years
 - Revenue Share (annual revenue of \$1400 per MW) Virginia Code 58.1-2636
 - or Real Estate Tax and Machine & Tools Tax
- Beneficial use of the land while preserving open space and wildlife corridors for decades
- Education/Training
- Clean energy to power thousands of homes, reduction of emissions and reliance on fossil fuels
- Upgrades to utility grid are funded by the project which will provide greater reliability and resiliency

Negative impacts of solar in the community:

- Increase in traffic during construction
- Change of use in land
- Change in viewshed
- Disturbance of land
- Noise

Workforce needs

- Electricians
- Electrical Helpers
- Equipment operators
- Truck drivers
- Mechanical- torque
- Receiving
- Administrative Assistants
- Safety
- Security
- Wire Pullers
- Panels
- Trash
- Site-maintenance
- Landscaping/Maintenance
- Stone/Gravel
- Fuel Supplier
- Fencing
- Grading
- Hauling
- Silt Fencing/Silt Ponds
- Pavement Cleaning
- Concrete
- Catering



How a Solar Facility is Constructed



Posts are driven into the ground and racking is installed.



Once the racking is complete, panels are then installed.

How a Solar Facility is Constructed (cont.)



Wire management is completed.



Inverters are installed to convert DC power to AC power.

How a Solar Facility is Constructed (Cont.)



Labeling is completed.



System is completed.

After Construction Long Term Maintenance of the Facility is Required



Lawn maintenance is important to keep grass from shading the panels, to encourage new grass growth, and to keep the system looking neat and tidy.



Electrical testing is performed several times a year to detect problems before they arise and to optimize system performance.

What happens after the solar facility reaches its maximum age?

After a solar facility reaches its maximum age of efficiency (approximately 40 to 50 years), the project owner will do one of two things:

1. The owner may decide to replace certain pieces of equipment and continue operation of the facility.
 - a) Replacement of major items such as inverters and PV modules are likely.
 - b) Newer more efficient technologies may be available at that time.
2. The owner will remove the facility and return the land back to its original state. Unique to solar.
 - a) Panels will be removed and sent to a recycling facility.
 - b) All steel racking and posts will be removed and recycled.
 - c) All electrical wiring will be removed and recycled.
 - d) All transformers and inverters will also be recycled.
 - e) All fences will be removed.
 - f) The site will be fully cleaned of any debris.
 - g) The site will be returned to its original state.

This process should take approximately 3 to 6 months at the time of decommissioning.

Q&A

Distances from project to nearest homes

- The distance from the closest equipment to a neighboring property line will be no less than 175'.

What does the buffer look like?

- Existing forested buffers will be utilized where possible. In areas lacking sufficient buffers, a minimum of two rows (staggered) with no less than 5 different species (to include a mixture of evergreen and deciduous trees and shrubs) such as Nellie Stevens Holly, Eastern Red Cedar, Emerald Cedar, Little Gem Magnolia, American Holly, and Virginia Pine will be planted.

Who mandates Soil Studies?

- The Virginia Department of Conservation and Recreation. Their website has a link to the Natural Resources Conservation Service soil survey mapping data. <https://www.dcr.virginia.gov/soil-and-water/ssurveys>

Runoff Mitigation?

- The Virginia Department of Environmental Quality is the lead agency for developing and implementing the Commonwealth's statewide program to protect water quality and quantity from stormwater.

Tracker or Fixed System?

- The design for Springfield Farm Solar is utilizing a single axis tracking ground mounted system.

Panel Life?

- Typical life span is 40 years.

Where does the power go?

- We are not able to control where the energy flows to, however it is likely that most of the energy will flow to the Elmont substation and the Greenwood DP substation and be consumed locally due to the high demand for energy within the local area.

Will my power bill be effected?

- Renewable solar power is one of the lowest cost sources of new energy generation, however your electric utility (Dominion or a local COOP) and the Virginia State Corporation Commission will determine whether or not your rates for electricity will go up or down in the future.

How many jobs from this project?

- A project of this size would require approximately 300 people to build the project, ranging from civil engineers to landscapers. The people working on the project would also be spending money within the community on food, lodging, entertainment, fuel, etc. A project of this size would take between 12-18 months to complete.

What do you do with Panels at end of

- The lifespan of a tier 1 solar panel is 40 years. The solar panel recycling industry is just ramping up <https://www.solarcycle.us/> It is our intent to use a local solar panel recycling facility once the panels are at the end of their useful lifecycle.

Where are the panels Manufactured?

- Tier 1 panels from manufacturers that are complying with Department of Commerce anticircumvention Rules, will be utilized for this project. Due to the length of time between now and the beginning of construction, we have not yet selected a panel vendor for this project.

What would happen if there was a tornado?

- The likelihood of a tornado damaging the facility is extremely low, however if there was an abnormal operating condition at the facility, the protective equipment would sense the problem and open protective breakers to protect both the solar facility as well as the grid.

Glare Issues?

- We utilize photovoltaic panels that have an anti-glare coating.

Noise from Inverter? How many?

- Inverters are no louder than your average residential HVAC system. There will be approximately 20-25 Inverters on this site.

What are the posts made of? What happens to soil from posts being in the ground for so many years?

- We utilize cold formed galvanized steel piles. These galvanized piles are treated with a (G235) zinc coating to minimize corrosion of the steel. With the right conditions, galvanized steel resists rusting for up to 50 years. <https://nap.nationalacademies.org/read/26686/chapter/6#42>

Explosions? Is this a concern?

- This is an electric generation facility which has high voltage electrical equipment inside the substation. The likelihood of a fire/explosion is very low, however there is a possibility that there could be an event requiring Fire and Rescue to respond. Prior to beginning construction, we will work with the local Fire and Rescue Departments to educate them on the potential dangers of the facility, access points, and best practices for extinguishing an electrical fire at this facility.

How many acres is this project?

- This project has a total acreage of 938, however we anticipate utilizing only 325-350 acres for panels.

How many panels?

- Engineering has not yet been completed for this facility, however we anticipate that this site will have approximately 175k to 190k panels.

If this wasn't a solar project, what else could it be?

- Existing allowable uses for this land include: sawmill, hog farm, chicken farm, cell towers, dog kennels, golf course, grain storage, commercial greenhouses, animal hospital, military base, or residential neighborhood. Many of which would require more services from Hanover County such as additional utilities, roads, more schools, fire responders, etc.

Will you repair the road if they get messed up?

- Yes. A pre-construction survey will be performed by VDOT to establish the existing condition of the roads, prior to construction. VDOT will perform a post-construction survey of the impacted roads and will perform repairs to the damaged roads at the cost of the solar project owner. If damages require immediate repair during the construction period, VDOT will make those repairs upon notification and the solar project owner will pay for those repairs.

Contact Information

Jason Hathcock

C: (252) 564-4604

6750 NC Highway 30 East, Bethel, NC 27812

www.sunenergy1.com | Jason.Hathcock@sunenergy1.com





Questions & Answers